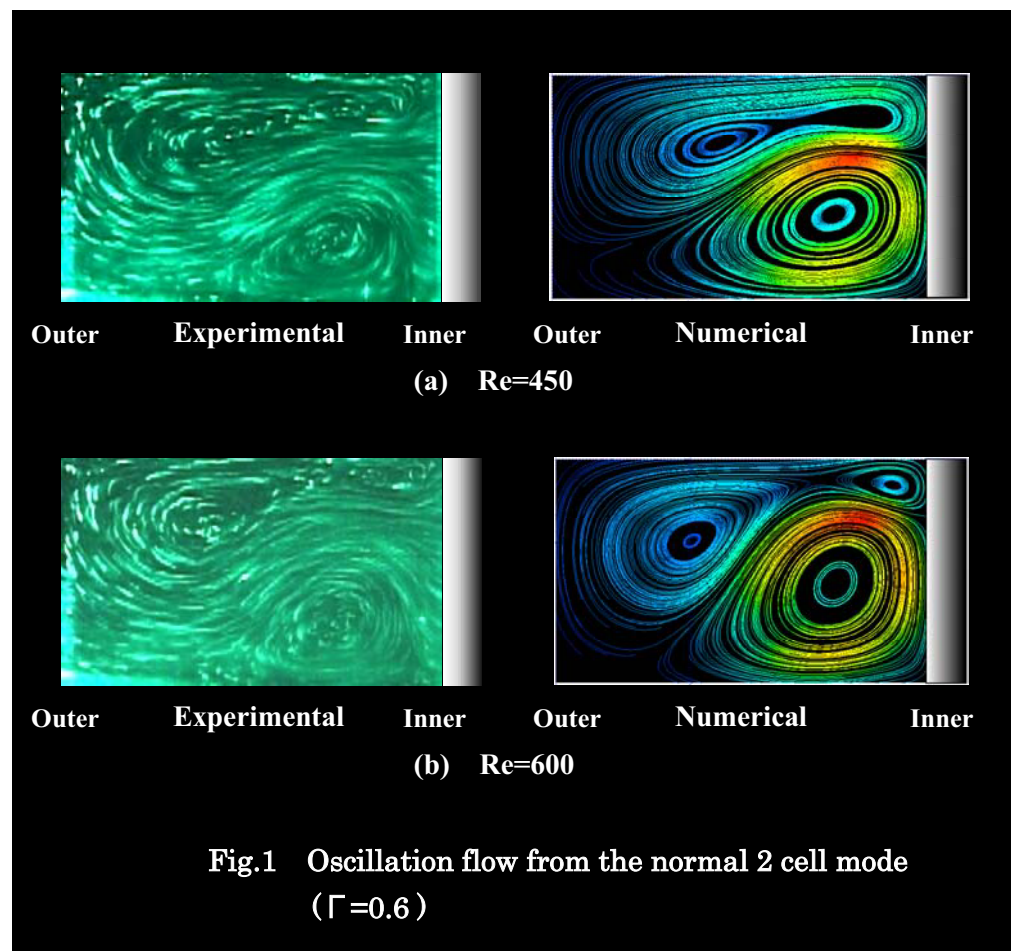# Visualization of Taylor-Couette Vortex with a Short Annulus

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Fig.1   Oscillation flow from the normal 2 cell mode
(Γ =0.6)

Upper and lower boundary effects with a short annulus of Taylor-Couette vortex flow are greatly related to the generation of various modes in vortices, which are obtained even in a same Reynolds number (Re). Parameters such as the aspect and radius ratios (Γ and η) defined from the geometry are important factors when the flow bifurcates to these modes.

Fig.1 shows one example of the various modes called 'the oscillating flow' in which a pair of vortices repeats growth and reduction alternately. This mode is developed from the normal two-cell mode and oscillates regularly even when a large disturbance is given in the flow field. The aspect ratio(Γ) and Re are defined as H/d and d W_0/v respectively,   where H is the height of the apparatus, d is the clearance between the inner and the outer cylinders, W_0 is the rotational speed of the inner cylinder and v is the kinematic viscosity.